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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/772,999	02/05/2004	Michael Long	200314456	5380

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HEWLETT PACKARD COMPANY
P O BOX 272400, 3404 E. HARMONY ROAD
INTELLECTUAL PROPERTY ADMINISTRATION
FORT COLLINS, CO 80527-2400

EXAMINER

TSIDULKO, MARK

ART UNIT	PAPER NUMBER
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2875

DATE MAILED: 03/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/772,999	LONG ET AL.	
	Examiner	Art Unit	
	Mark Tsidulko	2875	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16, 19-41 and 46-54 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 11, 15, 16, 19-41, 46-52 and 54 is/are allowed.
- 6) ☒ Claim(s) 1-10, 12, 14 and 53 is/are rejected.
- 7) ☒ Claim(s) 13 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

The submission of amendment filed on 12/05/2005 is acknowledged. At this point claims 19, 46 have been amended, claims 17, 18, 42-45 have been canceled, new claim 54 has been added and the remaining claims left unchanged. Thus, claims 1-16, 19-41, 46-54 are at issue in the instant application.

The indicated allowability of claims 10 and 53 is withdrawn in view of the newly discovered reference(s) to Shechterman and Futhey et al. Rejections based on the newly cited reference(s) follow.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 10 is rejected under 35 U.S.C. 102(b) as being anticipated by Shechterman (US 6,624,956).

Shechterman discloses (Figs.1, 10) a plurality of optical elements [NAL] that are optically coupled and have an optical axis, wherein a TIR prism is formed at an interface between two optical elements and a light integrating device [24] disposed to collect a light exiting from the TIR prism (col.5, lines 47-52).

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Claims 12, 53 are rejected under 35 U.S.C. 102(b) as being anticipated by Futhey et al. (US 2001/0030857).

Referring to Claim 12 Fithey et al. disclose (Fig.1) a plurality of TIR prisms [16] (page 2, [0035]) disposed in a line along an optical axis with a reflector [24] at one end of the light of the TIR prisms.

Referring to Claim 53 Fithey et al. disclose (Fig.1) an integrator [14].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-4, 6-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. (US 6,341,876) in view of Brake (US 4,322,128).

Referring to Claim 1 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703], two TIR prisms [709] and [711] and a light integrator rod [705] disposed to collect and homogenize light exiting from the prisms (col.7, lines 34-44). The hypotenuse reflective surfaces of the prisms [709] and [711] are not located on an optical axis of the system This axis is passed along the integrator [705], which outputs the light from the system . The light finally exits the light integrating system along this axis.

Moss et al. discloses the instant claimed invention except for coating.

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Brake discloses (col.4, lines 67, 68; col.5, lines 1-3) a prism wherein hypotenuse reflective surface has an aluminized coating which is a high-reflective, as well known in the art. Using this coating on hypotenuse surfaces of the prisms [709] and [711] allow to direct the light to the integrator [705] and prevent light loss.

Referring to Claim 2 Moss et al. disclose (Fig.7) an illumination system having two light sources [701] and [703].

Referring to Claim 3 Moss et al. discloses the instant claimed invention except for coating.

Referring to Claims 4, 6 Moss et al. disclose integrator having a light tunnel with reflective surfaces (Col.4, lines 20, 21).

Referring to Claim 7 Moss et al. disclose a light pipe (col.1, line 44).

Referring to Claim 8 Moss et al. disclose (Fig.7) a solid conducting rod [705].

Referring to Claims 9 Moss et al. disclose (Figs. 5, 7) an integrating device having a condenser lens [23], [703].

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the aluminized coating, as taught by Brake for the prism of the device of Moss et al., in order to improve the reflectivity and prevent light loss.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. and Brake, as applied to claim 4 above, and further in view of Potekev et al. (US 6,419,365).

Moss et al. discloses the instant claimed invention except for rectangular tunnel.

Potekev et al. disclose a rectangular integrating tunnel [44] used for obtaining uniform illumination brightness (col. 5, lines 2-8).

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It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the light integrator of Moss et al. having a rectangular integrating tunnel, as taught by Potekev et al., in order to improve illumination.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Moss et al. and Brake, as applied to claim 1 above, and further in view of Anderson (US 5,796,526).

Moss et al. discloses the instant claimed invention except for a plurality of TIR prisms disposed along an optical axis and a plurality of light sources.

Anderson discloses (Fig.3) a plurality of TIR prisms disposed along an optical axis and a plurality of light sources. This structure allows to increase an illumination of the device.

It would have been obvious to one having ordinary skill in the art, at the time the invention was made, to provide the a plurality of TIR prisms disposed along an optical axis and a plurality of light sources, as taught by Anderson, for the device of Moss et al. in order to increase an illumination of the device.

Allowable Subject Matter

Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

Referring to Claim 13 the prior art of record fails to show a light integrating system including a plurality of TIR prisms disposed along an optical axis and having a first set of the

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light sources disposed along one side of the line of TIR prisms and a second set of the light sources disposed along an opposite side of the line of TIR prisms.

Claims 11, 15, 16, 19-41, 46-52, 54 allowed.

The following is an examiner's statement of reasons for allowance:

Referring to Claim 11 the prior art of record fails to show a light integrating system having a plurality of TIR prisms, wherein the plurality of the TIR prisms are disposed along an optical axis and wherein each subsequent TIR prism has a steeper angle than a previous TIR prism along the optical axis.

Claim 52 is allowed as claim depended on claim 11.

Referring to Claim 15 the prior art of record fails to show a light integrating system wherein a first plurality of TIR prisms is disposed along an optical axis and a second plurality of TIR prisms is arranged along the first plurality of TIR prisms, but not on the optical axis of the first plurality of TIR prisms and each of the second plurality of TIR prisms is disposed adjacent to and optically coupled to one of the first plurality of TIR prisms.

Claim 16 is allowed as claim depended on claim 15.

Referring to Claims 19, 46, 54 the prior art of record fails to show a light integrating system including a first light source emitting a substantially white projection beam that is color-deficient over one or more specific portions of a visible spectrum and a second light source provided frequencies matching one or more of the portions of the visible spectrum over which the first light source is deficient, wherein the integrating light from the first and second light sources provides a projection beam in which the color deficiency of the first light source is corrected by the second light source.

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Claim 20 is allowed as claim depended on claim 19.

Claims 47, 48 are allowed as claims depended on claim 46.

Referring to Claim 21 the prior art of record fails to show a light integrating system including at least one TIR prism disposed along an optical axis, receiving a light from two different directions from two different light sources and a reflector disposed along the optical axis and reflecting light back through TIR prism and down the optical axis.

Claims 22-26 are allowed as claims depended on claim 21.

Referring to Claims 27, 49 the prior art of record fails to show a light integrating system including at least one TIR prism and a reflector disposed along the optical axis and reflecting light back through TIR prism and down the optical axis.

Claims 50, 51 are allowed as claims depended on claim 49.

Referring to Claims 28, 29 the prior art of record fails to show a light integrating system including a plurality of TIR prism and a reflector disposed along the optical axis and reflecting light back through TIR prism and down the optical axis.

Claim 30 is allowed as claim depended on claim 29.

Referring to Claim 31 the prior art of record fails to show a light integrating system having a first plurality of TIR prisms disposed along an optical axis and a second plurality of TIR prisms each of which is disposed adjacent and optically coupled with one of the first plurality of TIR prisms, and two light sources disposed with each of the second plurality of TIR prisms.

Claims 33-36 are allowed as claims depended on Claim 31.

Referring to Claim 32 the prior art of record fails to show system having first plurality and a second plurality of the TIR prisms and two light sources disposed with each of the second plurality of TIR prisms, wherein each of the second plurality of prisms receives and integrates light from two light sources.

Referring to Claim 37 the prior art of record fails to show system including a first plurality of TIR prisms disposed along an optical axis and a second plurality of TIR prisms each of which is disposed adjacent to and optically coupled with one of the first plurality of TIR prisms and a plurality of optical elements optically coupled along an optical axis, wherein TIR prisms are formed at interfaces between two of the optical elements.

Referring to Claim 39 the prior art of record fails to show a light projecting system including a first light source which is a projection lamp and the second light source which is a colored light source and a TIR prism receiving light from two light sources.

Claims 40, 41 are allowed as claims depended on Claim 39.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Response to Arguments

Applicant's arguments filed 12/05/2005 have been fully considered but they are not persuasive.

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Regarding Claim 1 Applicant argues that Brake teaches applying a coating to the hypotenuse surface of the prism, which is on the optical axis of the system.

In response, the Examiner would like to direct Applicant's attention to the fact, that hypotenuse reflective surfaces of the prisms [709] and [711] are not located on an optical axis of the system. The optical axis of the system is passed along the integrator [705]. Integrated light exits the system along this axis.

Also, it is clearly understood, that since Brake discloses the AR coating for TIR prism, any desired surface of the TIR prism can be coated with AR coating depending on necessity.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Tsidulko whose telephone number is (571)272-2384. The examiner can normally be reached on 8 - 5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sandra O'Shea can be reached on (571) 272-2378. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300 for all communications.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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M.T.
January 30, 2006



Sandra O'Shea
Supervisory Patent Examiner
Technology Center 2800